What is claimed is:

1. A method of determining a detected target's elevation in a radar system, the method comprising:

generating a main receive beam from a main receive channel and an auxiliary receive beam from an auxiliary receive channel;

receiving complex data, I/Q_{main} and I/Q_{aux}, from the main receive beam and the auxiliary receive beam, respectively;

detecting the target based on the received data;

calculating a received complex-ratio by computing:

$$\text{received complex-ratio} = \frac{I/Q_{aux}}{I/Q_{main}};$$

calculating a compensated received complex-ratio by compensating the received complex-ratio for any channel-to-channel drift in the receive channels; and

converting the compensated received complex-ratio to the target elevation angle.

2. The method of claim 1, wherein the step of calculating a compensated received complex-ratio comprises dividing the received compex-ratio by a compensation factor.

3. The method of claim 1, wherein the step of converting the compensated receive complex-ratio to the target elevation comprises:

comparing the compensated received complex-ratio to a set of reference complex-ratios in a complex lookup table and finding the closest match target elevation angle.

4. The method of claim 3, wherein the step of finding the closest match target elevation angle comprises:

locating a reference complex-ratio entry in the complex lookup table that has the smallest Euclidean distance from the compensated received complex-ratio.

5. The method of claim 1, further comprising:

generating at least one complex lookup table which contains a plurality of reference complex-ratios and target elevation angle corresponding to each of the reference complex-ratios.

6. The method of claim 1, further comprising:

executing a calibration sequence, the calibration sequence comprising:

transmitting a low power test pulse from a low power transmission test element;

receiving the test pulse at a main and an auxiliary feeds;

receive processing the test pulse to obtain the test pulse's complex data, $I/Q_{aux\text{-}test}$ and $I/Q_{main\text{-}test}$, in each of the two receive channels, and calculating a compensation factor by computing:

$$\text{compensation factor} = \frac{I/Q_{aux\text{-}test}}{I/Q_{main\text{-}test}}.$$

7. A radar system for determining the height of a detected target comprising:

a transmitter for generating a pulse of radio energy;

an antenna for emitting the pulse from the transmitter and receiving a target echo signal;

two receive channels, electrically connected to the antenna, for receiving a main monopulse receive beam and an auxiliary monopulse receive beam, measuring I/Q data from each of the two monopulse receive beams;

a complex divider for calculating a compensated received complex-ratio of the two I/Q data; and

a conversion unit for converting the compensated received complex-ratio to the target's height.

8. The radar system of claim 7, wherein the antenna comprises a reflector, a main feed and an auxiliary feed, the main feed transmitting the pulse from the transmitter, the antenna, in conjunction with the two feeds, forming the two monopulse receive beams, the main monopulse receive beam at the main feed and the auxiliary monopulse receive beam at the auxiliary feed.

9. The radar system of claim 8, wherein the two receive beams are elevation fan beams, substantially cosecant-squared, and are squinted in elevation.

10. The radar system of claim 8, wherein the reflector is a parabolic reflector and the two receive beams are squinted pencil beams formed by a parabolic reflector with two vertically separated feeds.

11. The radar system of claim 7, wherein the antenna comprises a phased-array radar with two beam formers and two electronically steered full-aperture sum beams.

12. The radar system of claim 7, wherein the conversion unit comprises:

a complex lookup table containing a plurality of reference complex-ratios and target elevation angles corresponding to each reference complex-ratios; and

an angle estimator that locates the reference complex-ratio entry that has the smallest Euclidean distance from the compensated received complex-ratio to find the corresponding target elevation angle.

13. A radar system for determining the height of a detected target comprising:

a transmitter for generating a pulse of radio energy;

an antenna for emitting the pulse from the transmitter and receiving a target echo signal;

two receive channels, electrically connected to the antenna, for receiving a main monopulse receive beam and an auxiliary monopulse receive beam, receiving

I/Q data, I/Q_{main} and I/Q_{aux}, from each of the two monopulse receive beams, respectively;

a complex divider for calculating a compensated received complex-ratio of the two I/Q data;

a conversion unit for converting the compensated received complex-ratio to the target's height; and

a calibration circuit for executing a calibration sequence for generating a compensation factor for compensating channel-to-channel amplitude and/or phase drift with time and variation over frequency.

14. The radar system of claim 13, wherein the antenna comprises a reflector, a main feed and an auxiliary feed,

the main feed transmitting the pulse from the transmitter,

the antenna, in conjunction with the two feeds, forming the two monopulse receive beams, the main monopulse receive beam at the main feed and the auxiliary monopulse receive beam at the auxiliary feed.

15. The radar system of claim 14, wherein the two receive beams are elevation fan beams, substantially cosecant-squared, and are squinted in elevation.

16. The radar system of claim 14, wherein the reflector is a parabolic reflector and the two receive beams are squinted pencil beams formed by a parabolic reflector with two vertically separated feeds.

17. The radar system of claim 13, wherein the antenna comprising a phased-array radar with two beam formers and two electronically steered full-aperture sum beams.

18. The radar system of claim 13, wherein the conversion unit comprises:

at least one complex lookup table containing a plurality of reference complex-ratios and target elevation angles corresponding to each reference complex-ratio; and

an angle estimator that locates the reference complex-ratio entry in the at least one complex lookup table that has the smallest Euclidean distance from the compensated received complex-ratio to find a corresponding target elevation angle, wherein

the at least one complex lookup table corresponds to the radar's RF radar operating frequency.

19. The radar system of claim 13, wherein the calibration circuit comprises:

a waveform generator for generating a test pulse;

a low power transmission test element provided in the reflector for transmitting a test pulse that is received by the main and the auxiliary feeds; and

receive channel components including the main feed, the auxiliary feed, low noise amplifiers, mixers, analog to digital converters, digital demodulators, and pulse compressors, wherein

the calibration sequence comprises a low power transmission of a test pulse from the low power transmission test element, receiving the test pulse at the main and the auxiliary feeds, receive processing the test pulse to obtain the test pulse's complex data, $I/Q_{aux\text{-}test}$ and $I/Q_{aux\text{-}main}$, in each of the two receive channels, and calculating the compensation factor by computing:

$$\text{compensation factor} = \frac{I/Q_{aux\text{-}test}}{I/Q_{aux\text{-}main}}.$$

20. The radar system of claim 13, wherein the calibration circuit further comprising a calibration data storage unit for storing the compensation factor.